MARKED-UP SPECIFICATION

Brief Description of the Drawings

Fig. 1 illustrates schematically an embodiment of a colloid particle 140 adapted to bind essentially any chemical or biological species and also to bind an oligonucleotide identifier.

Fig. 2 illustrates schematically a chip including a plurality of spatially-addressable regions, each region having a chemical or biological species (putative binding species) and an oligonucleotide identifier.

Fig. 3 illustrates, schematically, another embodiment showing a chip to which one or more chemical or biological species are fastened.

Fig. 4 illustrates an oligonucleotide identifier [e.g., cgatccttttactgc (SEQ ID NO:2)] of the invention adapted to be fastened to a surface, specifically via a self-assembled monolayer-forming species.

Fig. 5 illustrates identification of the polyamino acid tag [e.g., gatccttttactgc (SEQ ID NO:4)], of Figures 4-8 with a complementary oligonucleotide [e.g., ctaggaaaaa (SEQ ID NO:3)] following separation from the surface of the colloid particle to which it had been fastened.

Fig. 6 illustrates a surface of a colloid particle to which is fastened an oligonucleotide identifier [e.g., cgatccttttactgc (SEQ ID NO:2)] (Fig. 4) and a biological binding partner.

Fig. 7 illustrates biological binding between first and second biological binding partners attached to first and second colloid particles, respectively.

Fig. 8 illustrates separation of the oligonucleotide identifier [e.g., cgatccttttactgc (SEQ ID NO:2)] or [e.g., gatccttttactgc (SEQ ID NO:4)] of Fig. 6 from the surface of the colloid particle to which it had been fastened.

Fig. 9 illustrates an oligonucleotide identifier and a biological binding partner, each fastened to a surface of a colloid particle.

Fig. 10 illustrates two colloid particles, each carrying a biological species that biologically binds to the species of the other colloid particle, and each carrying a oligonucleotide identifier.

Fig. 11 illustrates binding of an interaction hybridization identifier [e.g., tgactgtcatcg (SEQ ID NO:7)] to the combination of the oligonucleotide identifiers bound, respectively, to the

colloid particles of Fig. 10. Non-complementary sequences [e.g., caccgtattagt (SEQ ID NO:5)] and [e.g., gtacgccgttgt (SEQ ID NO:6)] do not bind.

Fig. 12 illustrates de-activating any non-hybridized oligonucleotide.

Fig. 13 illustrates the result of the step of Fig. 12 with the hybridization identifier [e.g., tgactgtcatcg (SEQ ID NO:7)] remaining.

Fig. 14 illustrates denaturization of the interaction hybridization identifier [e.g., tgactgtcatcg (SEQ ID NO:7)] of Figures 11-13;

Fig. 15 illustrates identification of chimeric oligo solution [e.g., actgacagtagc (SEQ ID NO:8)] and thereby identification of the oligonucleotide identifiers of Figures 10-13.

Fig. 16 shows ACV demonstration of enhanced electronic communication across a self-assembled monolayer, and redox signaling of protein immobilization to a cell surface, against a control.

Fig. 17 shows ACV analysis of protein/protein interaction as measured by binding of a colloid to a magnetic bead.

Fig. 18 illustrates how two binding partners can be detected through magnetic recruitment.

Fig. 19 illustrates a multiplexing apparatus for applying and releasing a magnetic force at multiple locations on a continuous surface.